

IN THE CLAIMS:

1. (Currently Amended) Pulse magnetron which is pulsed for oscillation comprising:

an anode having a number of vanes mounted radially on ~~the~~ an inner wall of a cylindrical anode shell thereof;

a cathode provided at ~~the~~ a center of the anode to face ~~the~~ an inner end of each vane; and

a pair of pole pieces provided for applying a magnetic field substantially in parallel to the cathode across an interaction space defined between ~~the~~ an outer side of the cathode and the inner ends of the vanes;

wherein a radius r_a of ~~the~~ an inscribed circle defined by the inner ends of the vanes and a radius r_c of the cathode surface are determined by an equation (1);

wherein said radius r_a and radius r_c are measured at a point where ~~the~~ magnetic flux density is maximum along the axial direction of the cathode and ~~the~~ height of the vanes;

wherein the anode and the cathode are arranged to satisfy at least either (i) increasing the radius of the inscribed circle defined by the inner ends of the vanes or (ii) decreasing the radius of the cathode surface as the magnetic flux density ~~is declined~~ along the axial direction of the cathode and the height of the vanes;

wherein the equation (1) is represented as follows:

$$V_a = 942(r_a^2 - r_c^2)(10^4b - 10650 / n\lambda) / n\lambda \quad (1)$$

where V_a is the pulsed anode voltage (in V), r_a is the radius of the anode (the radius in cm of an inscribed circle defined by the inner ends of the vanes), r_c is the radius of the cathode surface (in cm), b is ~~the~~ a minimum of the magnetic flux density T along ~~the~~ an axis of the interaction space, n is the (number of divisions (the number of the vanes))/2, and λ is the

oscillation wavelength (in cm).

2. (New) Magnetron having a central cathode (2) having an outer surface facing a plurality of cavity resonators formed by a corresponding plurality of vanes (12) extending from a shell anode (1) surrounding said cathode in such a way as to form an interaction space (4) between inner ends of the vanes and said outer surface of the cathode, characterized by an increasing distance between the outer surface of the cathode and the inner ends of the vanes towards a center of said interaction space.